Guideline Essentials:

American Heart Association Clinical Slide Series

ADAPTED FROM:

2026 AHA/ACC/ADA/ASN Guideline for the Prevention, Detection, Evaluation, and Management of Cardiovascular-Kidney-Metabolic Syndrome

American Heart Association.

AHA Clinical (PPTX)

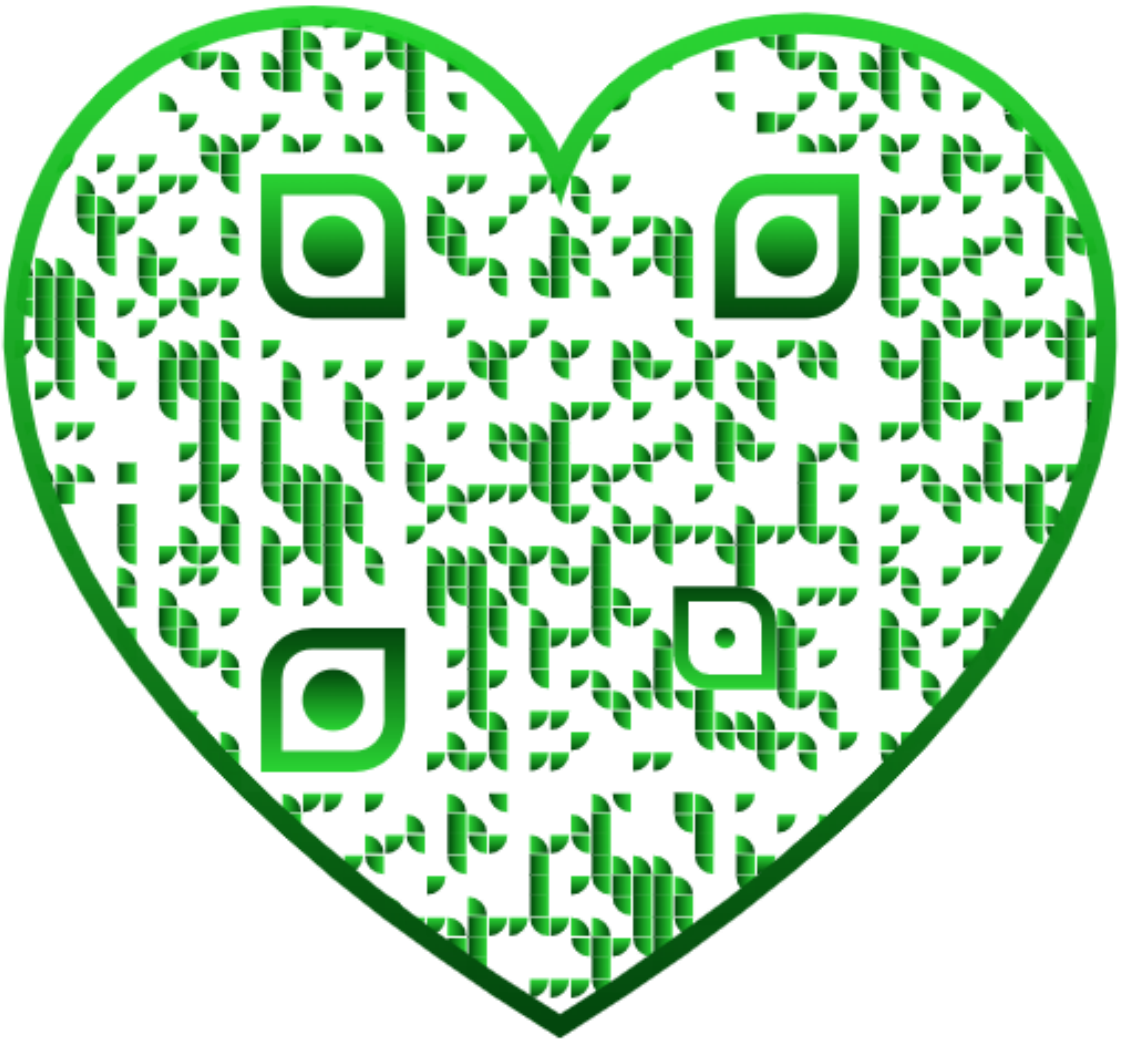


Table 1. Applying Class of Recommendation and Level of Evidence to Clinical Strategies, Interventions, Treatments, or Diagnostic Testing in Patient Care

CLASS (STRENGTH) OF RECOMMENDATION

CLASS 1 (STRONG) — Benefit >>> Risk

Suggested phrases for writing recommendations:
- Is recommended
- Is indicated/useful/effective/beneficial
- Should be performed/administered/other
- Comparative-Effectiveness Phrases†:
  - Treatment/strategy A is recommended/indicated in preference to treatment B
  - Treatment A should be chosen over treatment B

CLASS 2a (MODERATE) — Benefit >> Risk

Suggested phrases for writing recommendations:
- Is reasonable
- Can be useful/effective/beneficial
- Comparative-Effectiveness Phrases†:
  - Treatment/strategy A is probably recommended/indicated in preference to treatment B
  - It is reasonable to choose treatment A over treatment B

CLASS 2b (Weak) — Benefit ≥ Risk

Suggested phrases for writing recommendations:
- May/might be reasonable
- May/might be considered
- Usefulness/effectiveness is unknown/unclear/uncertain or not well-established

CLASS 3: No Benefit (MODERATE) — Benefit = Risk

Suggested phrases for writing recommendations:
- Is not recommended
- Is not indicated/useful/effective/beneficial
- Should not be performed/administered/other

CLASS 3: Harm (STRONG) — Risk > Benefit

Suggested phrases for writing recommendations:
- Potentially harmful
- Causes harm
- Associated with excess morbidity/mortality
- Should not be performed/administered/other

LEVEL (QUALITY) OF EVIDENCE‡

LEVEL A
- High-quality evidence‡ from more than 1 RCT
- Meta-analyses of high-quality RCTs
- One or more RCTs corroborated by high-quality registry studies

LEVEL B-R (Randomized)
- Moderate-quality evidence‡ from 1 or more RCTs
- Meta-analyses of moderate-quality RCTs

LEVEL B-NR (Nonrandomized)
- Moderate-quality evidence‡ from 1 or more well-designed, well-executed nonrandomized studies, observational studies, or registry studies
- Meta-analyses of such studies

LEVEL C-LD (Limited Data)
- Randomized or nonrandomized observational or registry studies with limitations of design or execution
- Meta-analyses of such studies
- Physiological or mechanistic studies in human subjects

LEVEL C-EO (Expert Opinion)
- Consensus of expert opinion based on clinical experience.

COR and LOE are determined independently (any COR may be paired with any LOE).

A recommendation with LOE C does not imply that the recommendation is weak. Many important clinical questions addressed in guidelines do not lend themselves to clinical trials. Although RCTs are unavailable, there may be a very clear clinical consensus that a particular test or therapy is useful or effective.

* The outcome or result of the intervention should be specified (an improved clinical outcome or increased diagnostic accuracy or incremental prognostic information).

† For comparative-effectiveness recommendation (COR 1 and 2a; LOE A and B only), studies that support the use of comparator verbs should involve direct comparisons of the treatments or strategies being evaluated.

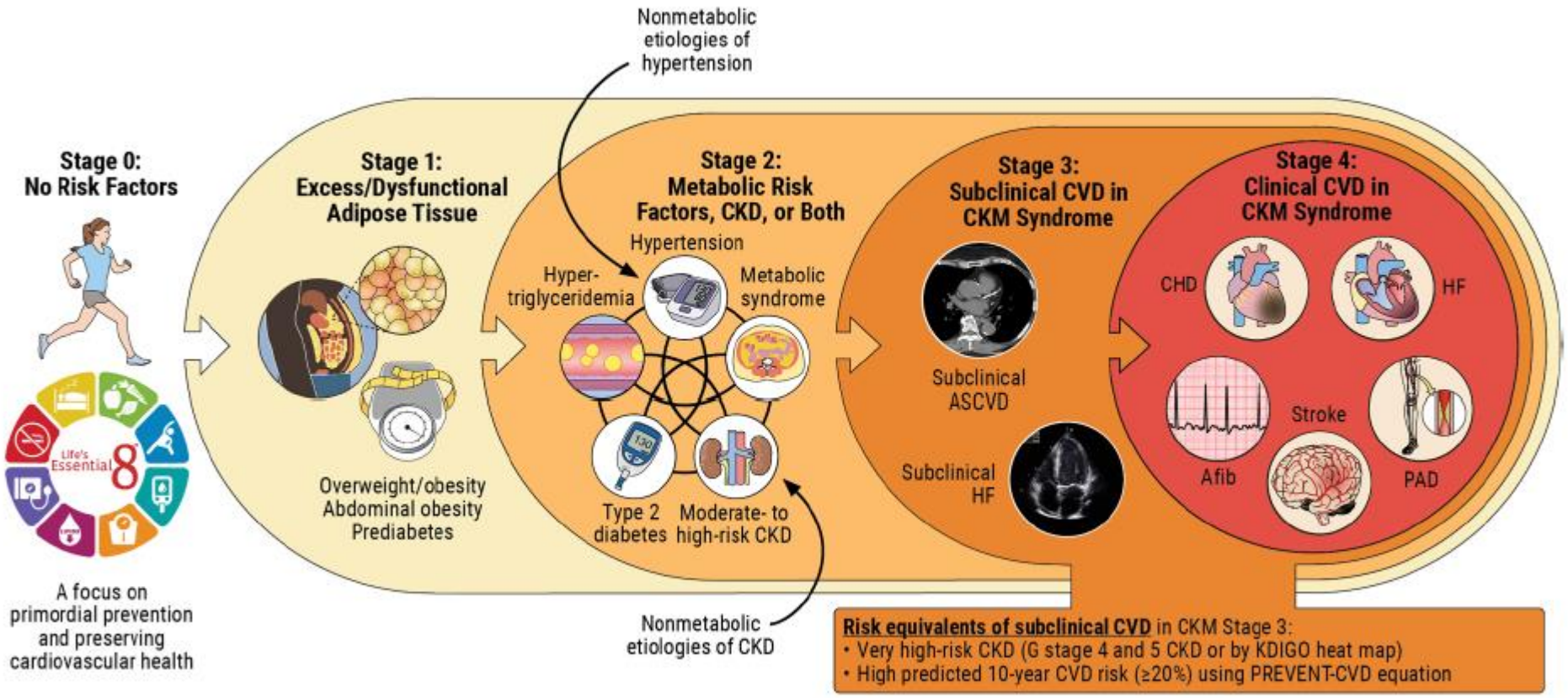
‡ The method of assessing quality is evolving, including the application of standardized, widely-used, and preferably validated evidence grading tools; and for systematic reviews, the incorporation of an Evidence Review Committee.

COR indicates Class of Recommendation; EO, expert opinion; LD, limited data; LOE, Level of Evidence; NR, nonrandomized; R, randomized; and RCT, randomized controlled trial.

American Heart Association.

Ndumele, C.E., et al. 2026 AHA/ACC/ADA/ASN Guideline for the Prevention, Detection, Evaluation, and Management of CKM Syndrome. *Circulation*.

Stages of CKM Syndrome


Nonmetabolic etiologies of hypertension
Stage 0: No Risk Factors
Life's Essential 8
A focus on primordial prevention and preserving cardiovascular health
Stage 1: Excess/Dysfunctional Adipose Tissue
Overweight/obesity
Abdominal obesity
Prediabetes
Stage 2: Metabolic Risk Factors, CKD, or Both
Hypertension
Hyper-triglyceridemia
Metabolic syndrome
Type 2 diabetes
Moderate- to high-risk CKD
Nonmetabolic etiologies of CKD
Stage 3: Subclinical CVD in CKM Syndrome
Subclinical ASCVD
Subclinical HF
Stage 4: Clinical CVD in CKM Syndrome
CHD
HF
Stroke
Afib
PAD
Risk equivalents of subclinical CVD in CKM Stage 3:
• Very high-risk CKD (G stage 4 and 5 CKD or by KDIGO heat map)
• High predicted 10-year CVD risk (≥20%) using PREVENT-CVD equation

Abbreviations: Afib indicates atrial fibrillation; ASCVD, atherosclerotic cardiovascular disease; CHD, coronary heart disease; CKD, chronic kidney disease; CKM, cardiovascular-kidney-metabolic; CVD, cardiovascular disease; HF, heart failure; KDIGO, Kidney Disease: Improving Global Outcomes; PAD, peripheral artery disease; and PREVENT, Predicting Risk of Cardiovascular Disease Events.

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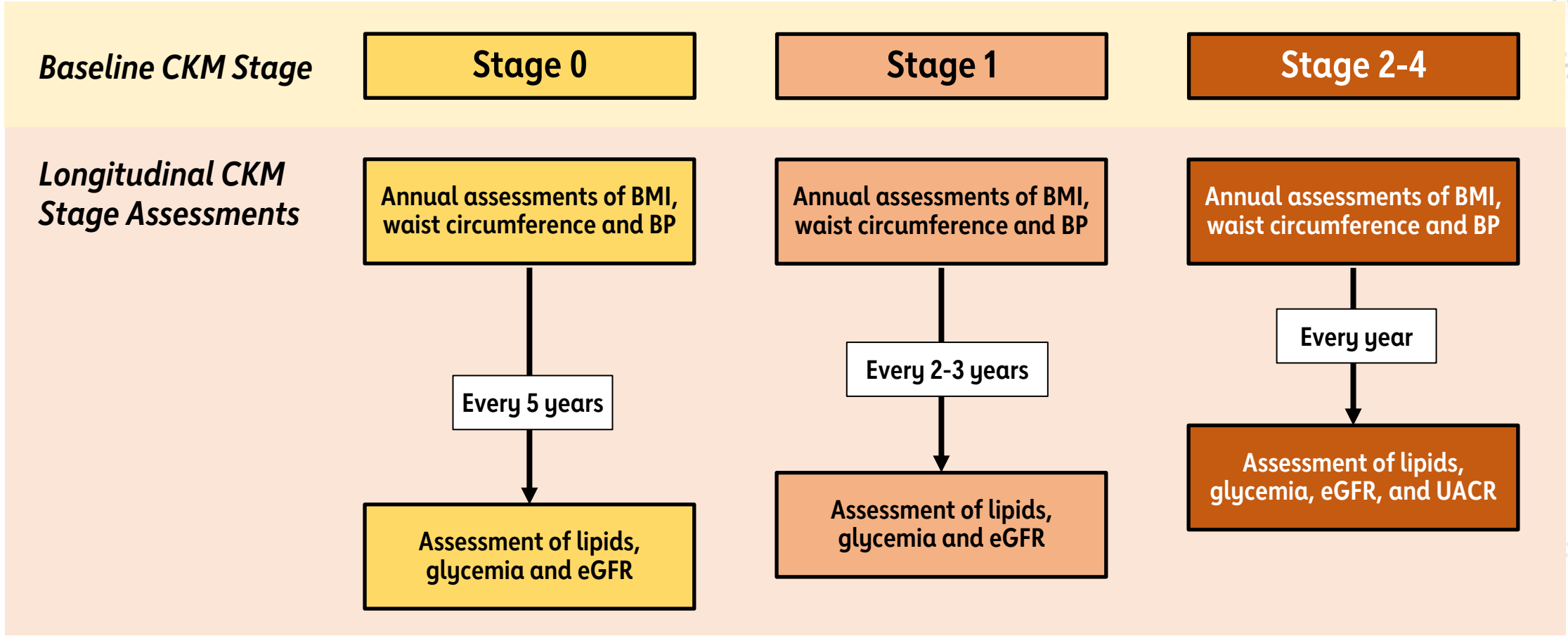
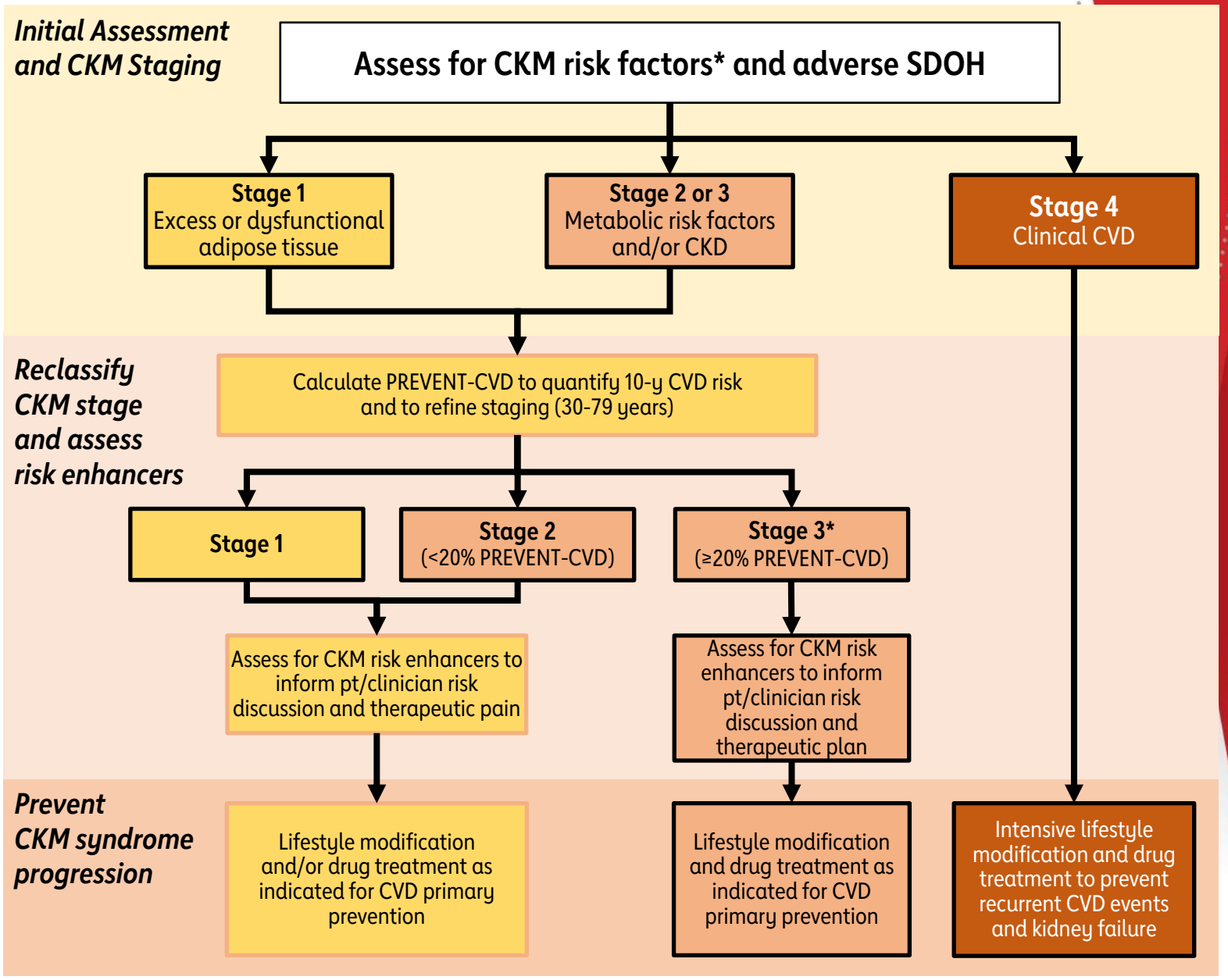
Longitudinal Assessments for Adults According to Baseline CKM Syndrome Stage


Baseline CKM Stage
Stage 0
Stage 1
Stage 2-4
Longitudinal CKM Stage Assessments
Annual assessments of BMI, waist circumference and BP
Every 5 years
Assessment of lipids, glycemia and eGFR
Annual assessments of BMI, waist circumference and BP
Every 2-3 years
Assessment of lipids, glycemia and eGFR
Annual assessments of BMI, waist circumference and BP
Every year
Assessment of lipids, glycemia, eGFR, and UACR

Abbreviations: BMI indicates body mass index; BP, blood pressure; CKM, cardiovascular kidney metabolic; eGFR, estimated glomerular filtration rate; and UACR, urine albumin-to-creatinine ratio.

Ndumele, C.E., et al. 2026 AHA/ACC/ADA/ASN Guideline for the Prevention, Detection, Evaluation, and Management of CKM Syndrome. *Circulation*.

Conceptual Approach to CKM Risk Assessment and Refinement


Initial Assessment and CKM Staging
Assess for CKM risk factors* and adverse SDOH
Stage 1
Excess or dysfunctional adipose tissue
Stage 2 or 3
Metabolic risk factors and/or CKD
Stage 4
Clinical CVD
Reclassify CKM stage and assess risk enhancers
Calculate PREVENT-CVD to quantify 10-y CVD risk and to refine staging (30-79 years)
Stage 1
Stage 2
(<20% PREVENT-CVD)
Stage 3*
(≥20% PREVENT-CVD)
Assess for CKM risk enhancers to inform pt/clinician risk discussion and therapeutic pain
Assess for CKM risk enhancers to inform pt/clinician risk discussion and therapeutic plan
Prevent CKM syndrome progression
Lifestyle modification and/or drug treatment as indicated for CVD primary prevention
Lifestyle modification and drug treatment as indicated for CVD primary prevention
Intensive lifestyle modification and drug treatment to prevent recurrent CVD events and kidney failure

*CKM risk factors include adiposity, blood pressure, lipids, glycemia, and kidney function. Conceptual overview of the approach to staging that integrates baseline CKM assessments, risk estimation with the PREVENT-CVD equations, and personalization with risk-enhancing factors.

Abbreviations: CKM indicates cardiovascular kidney metabolic; CKD, chronic kidney disease; CV, cardiovascular; CVD, cardiovascular disease; pt, patient; and SDOH, social determinants of health.

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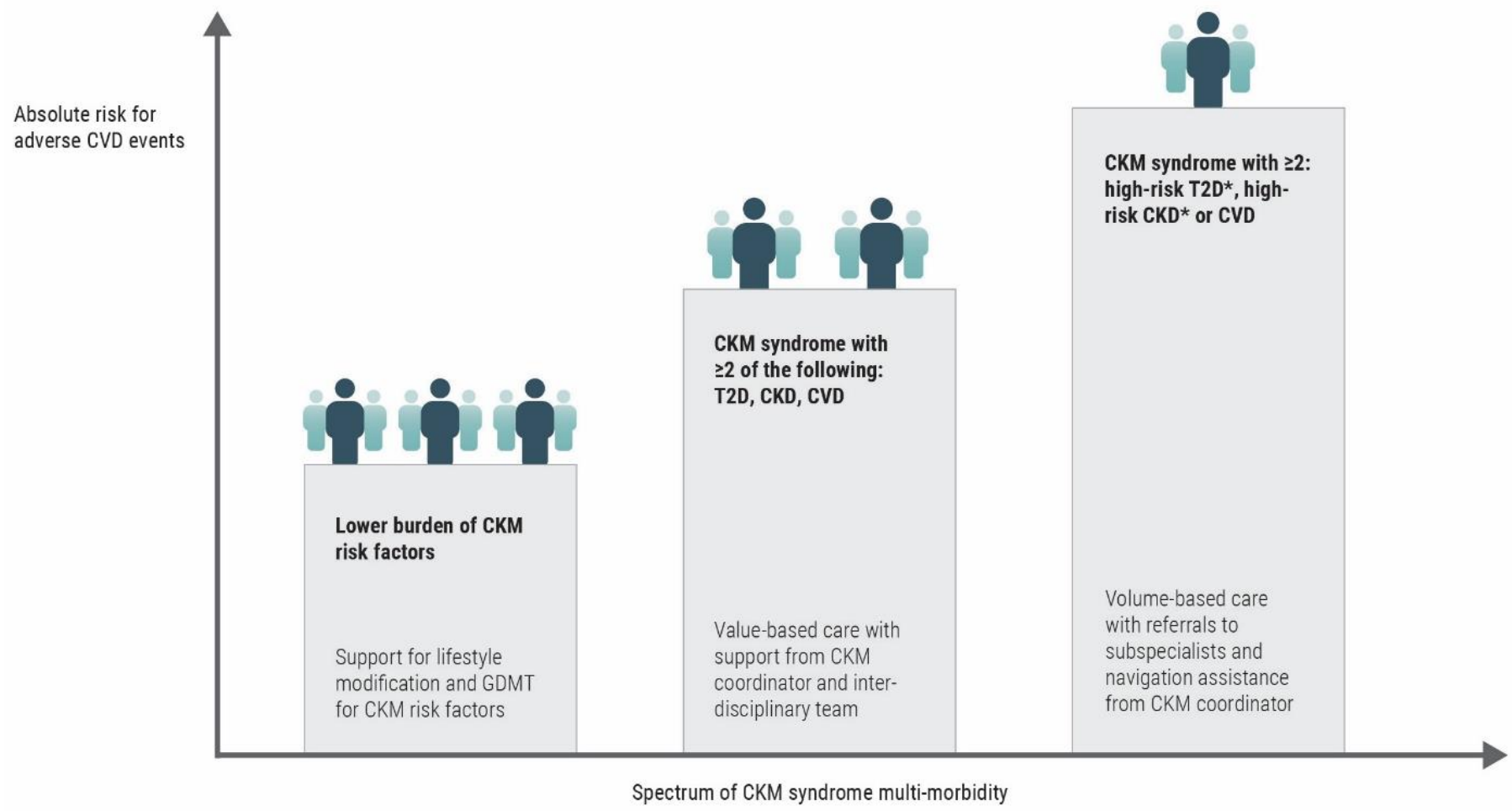
Use of Interdisciplinary Care Models in CKM Syndrome


Absolute risk for adverse CVD events
Lower burden of CKM risk factors
Support for lifestyle modification and GDMT for CKM risk factors
CKM syndrome with ≥2 of the following: T2D, CKD, CVD
Value-based care with support from CKM coordinator and inter-disciplinary team
CKM syndrome with ≥2: high-risk T2D*, high-risk CKD* or CVD
Volume-based care with referrals to subspecialists and navigation assistance from CKM coordinator
Spectrum of CKM syndrome multi-morbidity

Abbreviations: CKD indicates chronic kidney disease; CKM, cardiovascular kidney metabolic; CVD, cardiovascular disease; and T2D, type 2 diabetes.

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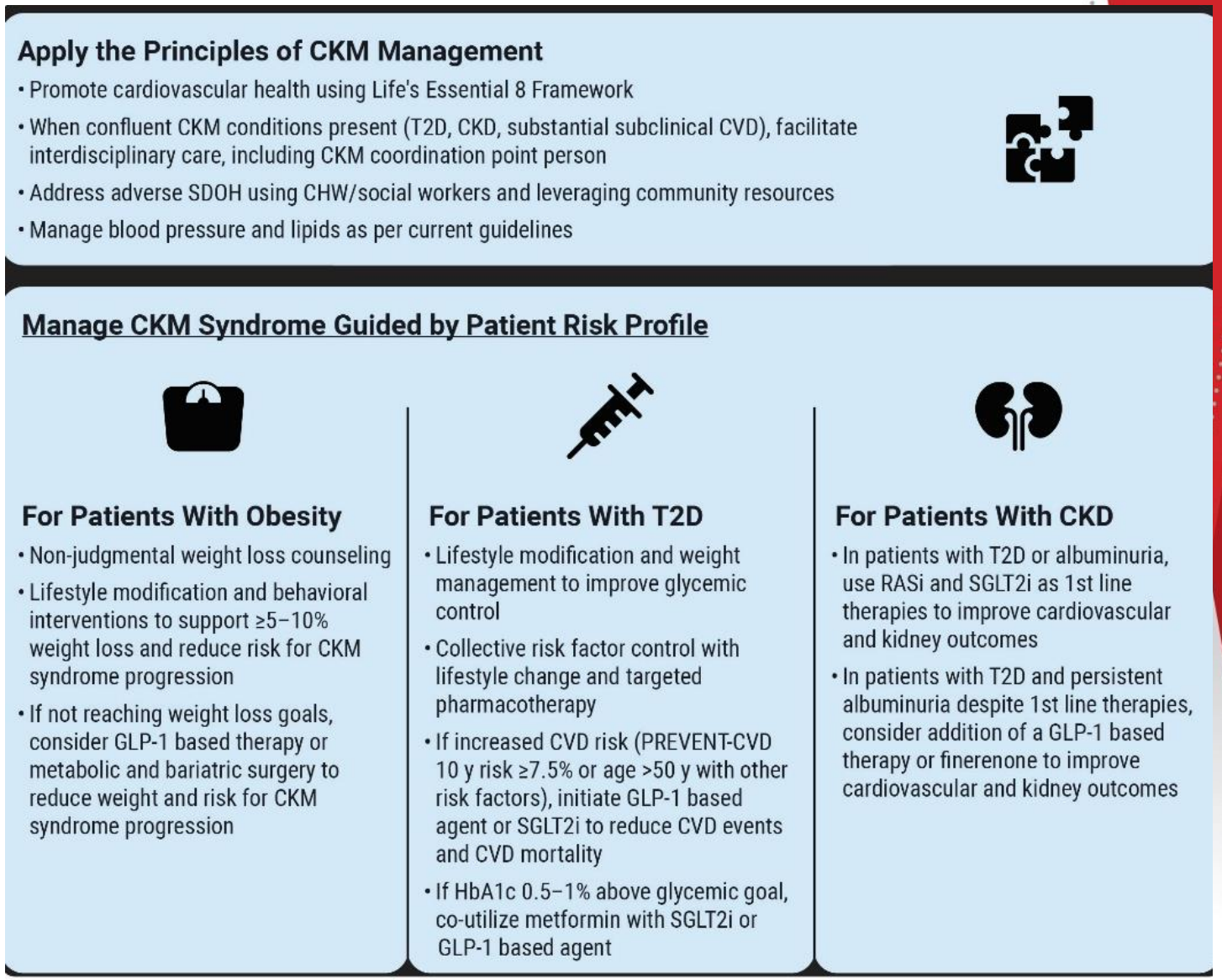
Overview of Management Principles for CKM Syndrome Stages 1 to 3 for Patients With Obesity, Type 2 Diabetes, or CKD

Abbreviations: CHW indicates community health worker; CKD, chronic kidney disease; CKM, cardiovascular kidney metabolic; CV, cardiovascular; CVD, cardiovascular disease; DM, diabetes; GLP-1, glucagon-like peptide-1; RASi; renin-angiotensin system inhibitors; SDOH, social determinants of health; SGLT2i ; sodium-glucose cotransporter-2 inhibitors; and T2D, type 2 diabetes.


Apply the Principles of CKM Management
• Promote cardiovascular health using Life's Essential 8 Framework
• When confluent CKM conditions present (T2D, CKD, substantial subclinical CVD), facilitate interdisciplinary care, including CKM coordination point person
• Address adverse SDOH using CHW/social workers and leveraging community resources
• Manage blood pressure and lipids as per current guidelines
Manage CKM Syndrome Guided by Patient Risk Profile
For Patients With Obesity
• Non-judgmental weight loss counseling
• Lifestyle modification and behavioral interventions to support ≥5–10% weight loss and reduce risk for CKM syndrome progression
• If not reaching weight loss goals, consider GLP-1 based therapy or metabolic and bariatric surgery to reduce weight and risk for CKM syndrome progression
For Patients With T2D
• Lifestyle modification and weight management to improve glycemic control
• Collective risk factor control with lifestyle change and targeted pharmacotherapy
• If increased CVD risk (PREVENT-CVD 10 y risk ≥7.5% or age >50 y with other risk factors), initiate GLP-1 based agent or SGLT2i to reduce CVD events and CVD mortality
• If HbA1c 0.5–1% above glycemic goal, co-utilize metformin with SGLT2i or GLP-1 based agent
For Patients With CKD
• In patients with T2D or albuminuria, use RASi and SGLT2i as 1st line therapies to improve cardiovascular and kidney outcomes
• In patients with T2D and persistent albuminuria despite 1st line therapies, consider addition of a GLP-1 based therapy or finerenone to improve cardiovascular and kidney outcomes

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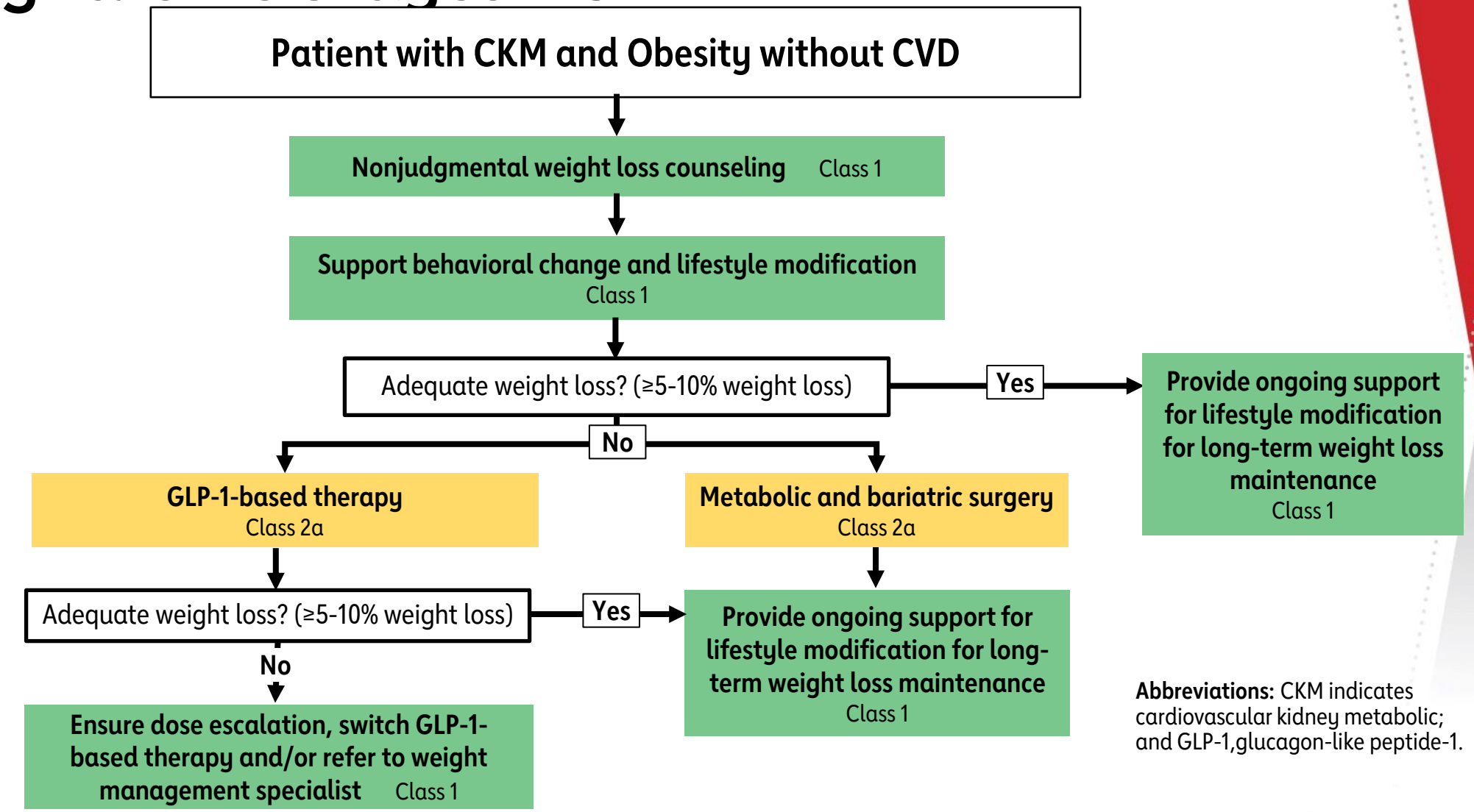
Management of Obesity in CKM Syndrome Stages 1-3


Patient with CKM and Obesity without CVD
Nonjudgmental weight loss counseling Class 1
Support behavioral change and lifestyle modification
Class 1
Adequate weight loss? (≥5-10% weight loss)
Yes
Provide ongoing support for lifestyle modification for long-term weight loss maintenance
Class 1
No
GLP-1-based therapy
Class 2a
Metabolic and bariatric surgery
Class 2a
Adequate weight loss? (≥5-10% weight loss)
Yes
Provide ongoing support for lifestyle modification for long-term weight loss maintenance
Class 1
No
Ensure dose escalation, switch GLP-1-based therapy and/or refer to weight management specialist Class 1

Abbreviations: CKM indicates cardiovascular kidney metabolic; and GLP-1,glucagon-like peptide-1.

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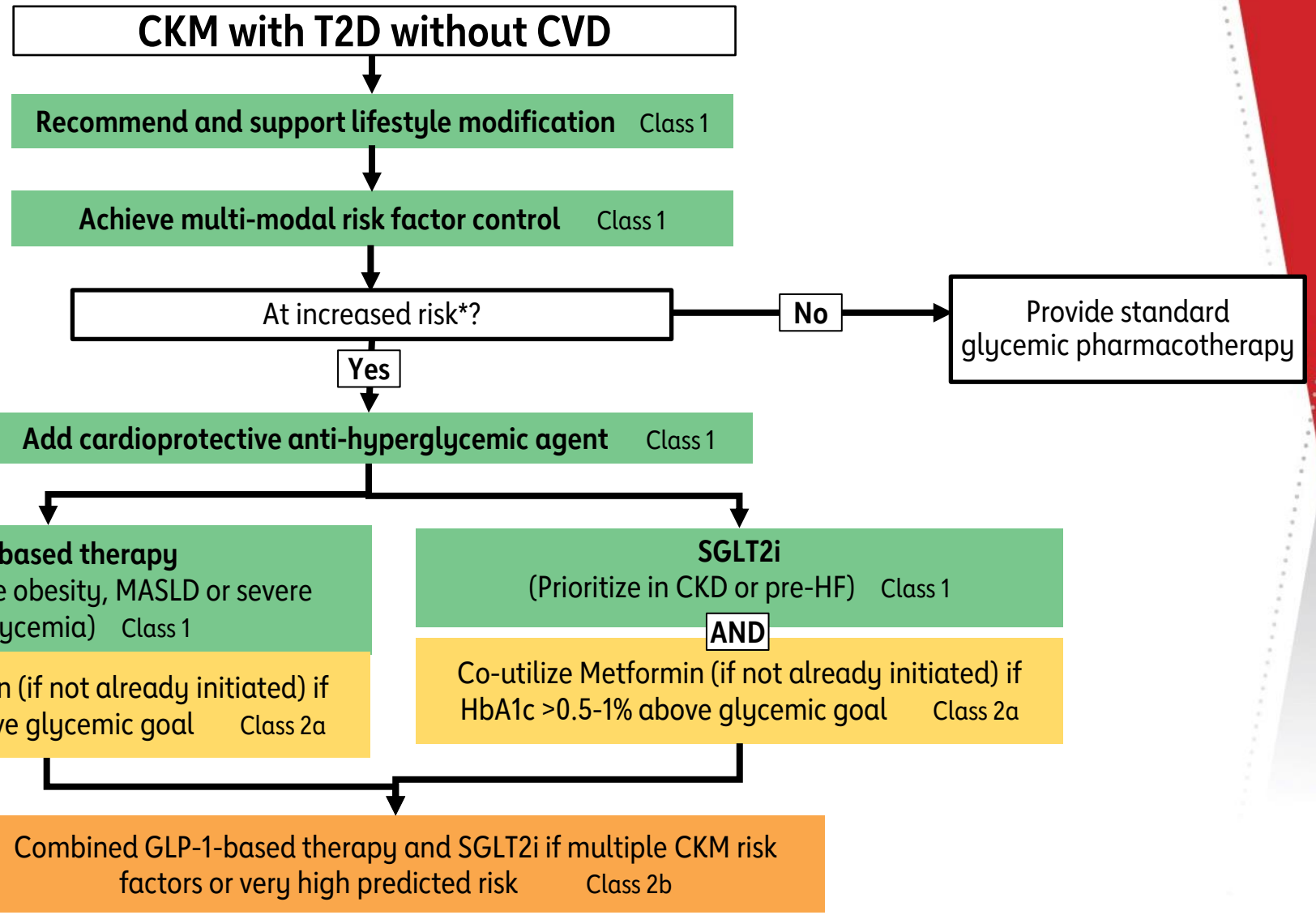
Management of Type 2 Diabetes in CKM Syndrome Stages 2-3


CKM with T2D without CVD
Recommend and support lifestyle modification Class 1
Achieve multi-modal risk factor control Class 1
At increased risk*?
No
Provide standard glycemic pharmacotherapy
Yes
Add cardioprotective anti-hyperglycemic agent Class 1
GLP-1-based therapy
(Prioritize in severe obesity, MASLD or severe hyperglycemia) Class 1
AND
Co-utilize Metformin (if not already initiated) if HbA1c >0.5-1% above glycemic goal Class 2a
SGLT2i
(Prioritize in CKD or pre-HF) Class 1
AND
Co-utilize Metformin (if not already initiated) if HbA1c >0.5-1% above glycemic goal Class 2a
Combined GLP-1-based therapy and SGLT2i if multiple CKM risk factors or very high predicted risk Class 2b

*Increased risk is defined as 10-year PREVENT-CVD of ≥7.5% or age ≥50 years with T2D and additional CKM risk factors.

Abbreviations:
CKM indicates cardiovascular kidney metabolic; GLP-1, glucagon-like peptide-1; HbA1c, glycated hemoglobin A1C; HF, heart failure; MASLD, metabolic-dysfunction associated steatotic liver disease; SGLT2i ; sodium-glucose cotransporter-2 inhibitors; and T2D, type 2 diabetes.

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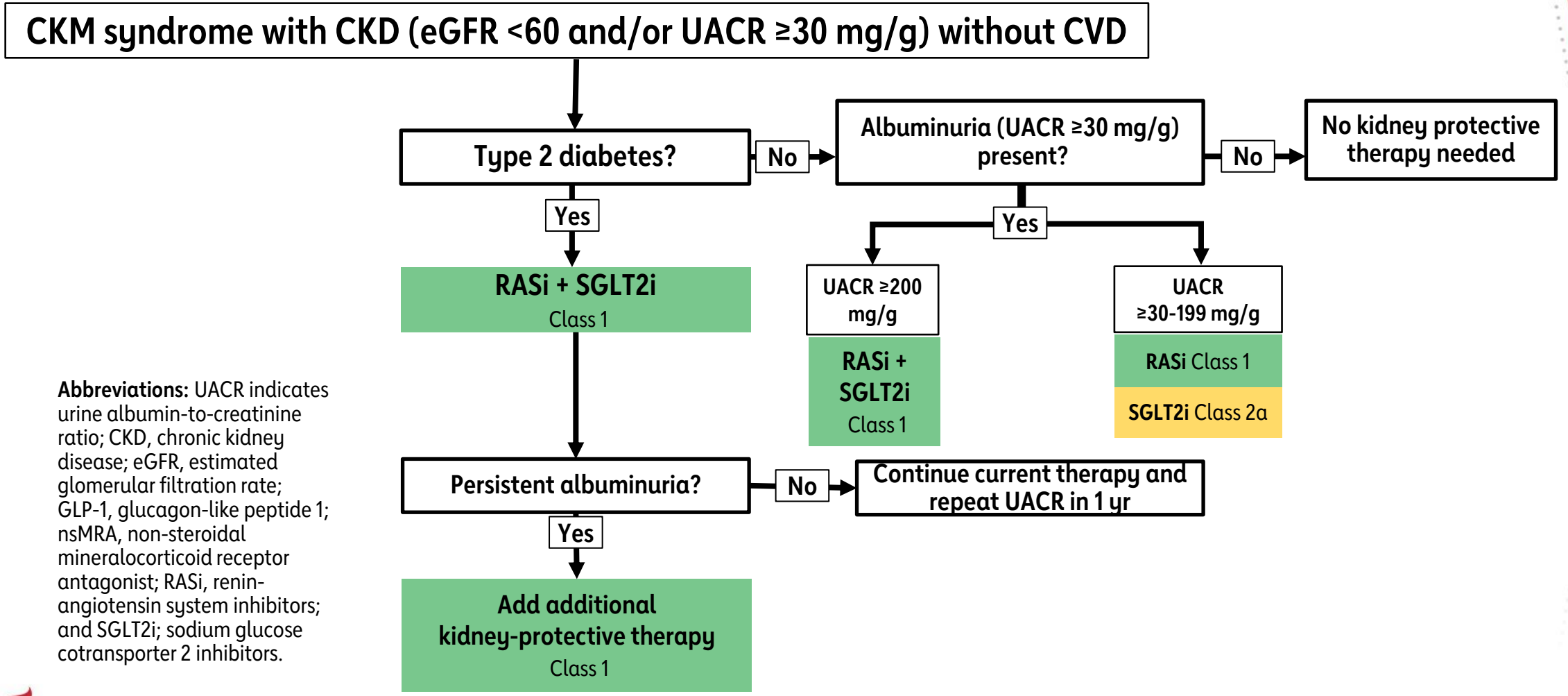
Management of CKD in CKM Syndrome Stage 2-3



Abbreviations: UACR indicates urine albumin-to-creatinine ratio; CKD, chronic kidney disease; eGFR, estimated glomerular filtration rate; GLP-1, glucagon-like peptide 1; nsMRA, non-steroidal mineralocorticoid receptor antagonist; RASi, renin-angiotensin system inhibitors; and SGLT2i; sodium glucose cotransporter 2 inhibitors.

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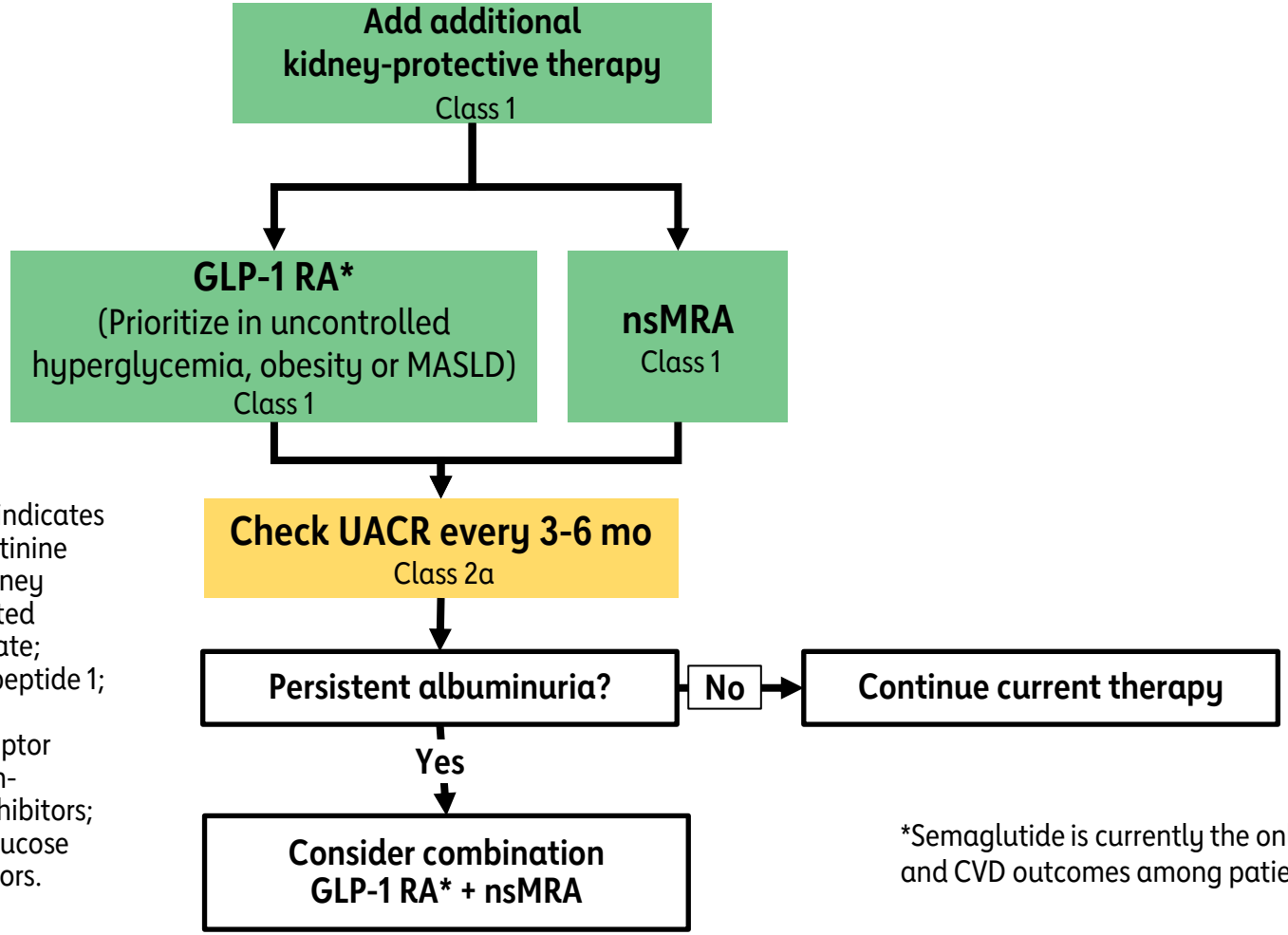
Management of CKD in CKM Syndrome Stages 2-3, continued



Abbreviations: UACR indicates urine albumin-to-creatinine ratio; CKD, chronic kidney disease; eGFR, estimated glomerular filtration rate; GLP-1, glucagon-like peptide 1; nsMRA, non-steroidal mineralocorticoid receptor antagonist; RASi, renin-angiotensin system inhibitors; and SGLT2i; sodium glucose cotransporter 2 inhibitors.

*Semaglutide is currently the only GLP-1 RA demonstrated to improve kidney and CVD outcomes among patients with T2D and CKD with albuminuria.

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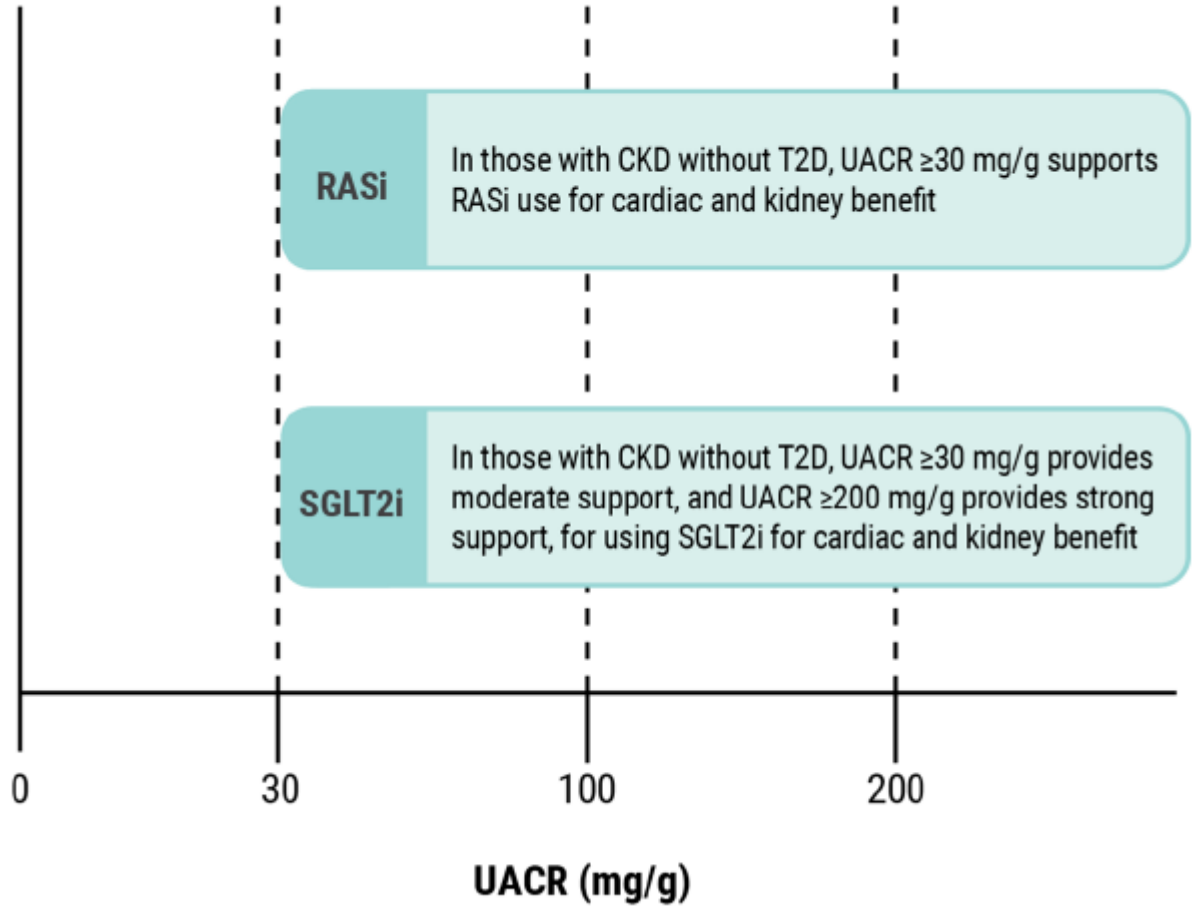
Cardiovascular and Kidney Protective Therapies in CKD *Without* T2D using UACR


RASi
In those with CKD without T2D, UACR ≥30 mg/g supports RASi use for cardiac and kidney benefit
SGLT2i
In those with CKD without T2D, UACR ≥30 mg/g provides moderate support, and UACR ≥200 mg/g provides strong support, for using SGLT2i for cardiac and kidney benefit
0
30
100
200
UACR (mg/g)

Abbreviations: CKD indicates chronic kidney disease; T2D, type 2 diabetes; RASi; renin-angiotensin system inhibitors; SGLT2i ; sodium-glucose cotransporter-2 inhibitors; and UACR, urine albumin-creatinine ratio.

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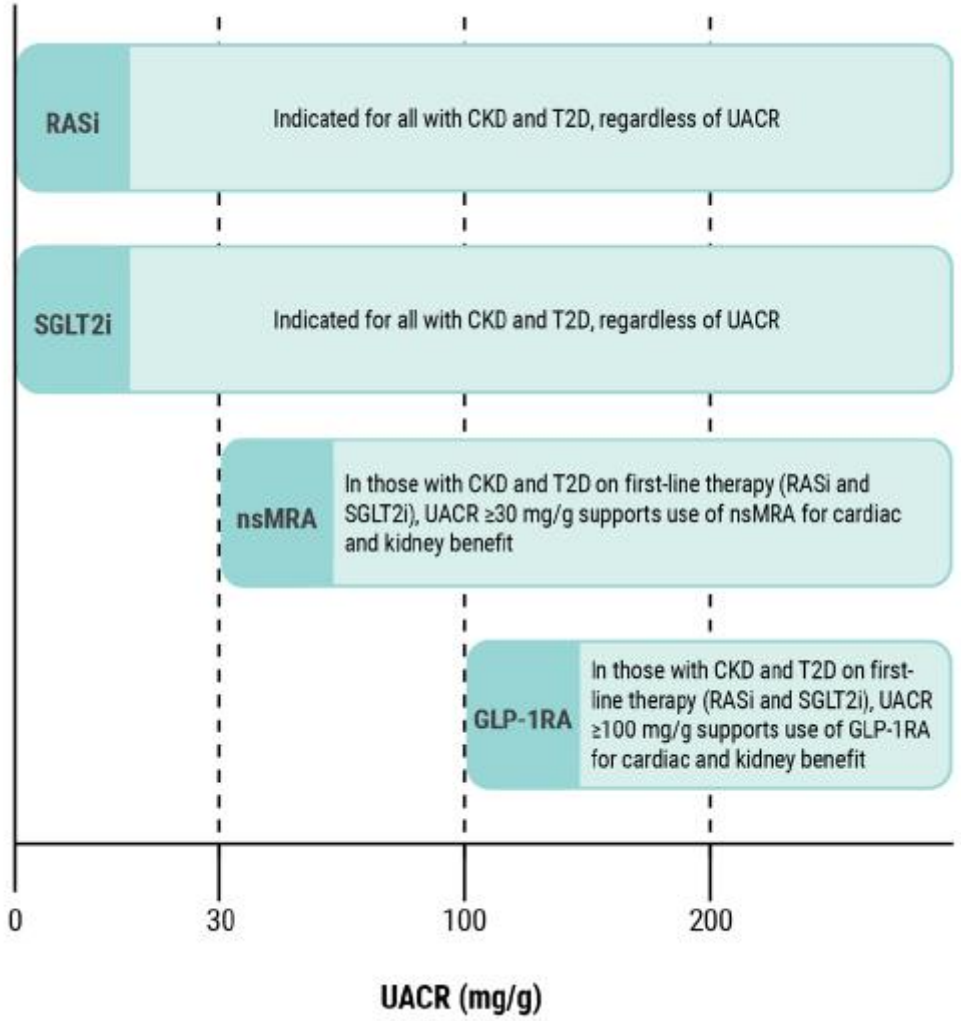
Cardiovascular and Kidney Protective Therapies in CKD *With* T2D using UACR


RASi
Indicated for all with CKD and T2D, regardless of UACR
SGLT2i
Indicated for all with CKD and T2D, regardless of UACR
nsMRA
In those with CKD and T2D on first-line therapy (RASi and SGLT2i), UACR ≥30 mg/g supports use of nsMRA for cardiac and kidney benefit
GLP-1RA
In those with CKD and T2D on first-line therapy (RASi and SGLT2i), UACR ≥100 mg/g supports use of GLP-1RA for cardiac and kidney benefit
0
30
100
200
UACR (mg/g)

Abbreviations: CKD indicates chronic kidney disease; T2D, type 2 diabetes; GLP-1, glucagon-like peptide 1; nsMRA, non-steroidal mineralocorticoid receptor antagonist; RASi; renin-angiotensin system inhibitors; SGLT2i ; sodium-glucose cotransporter-2 inhibitors; and UACR, urine albumin-creatinine ratio.

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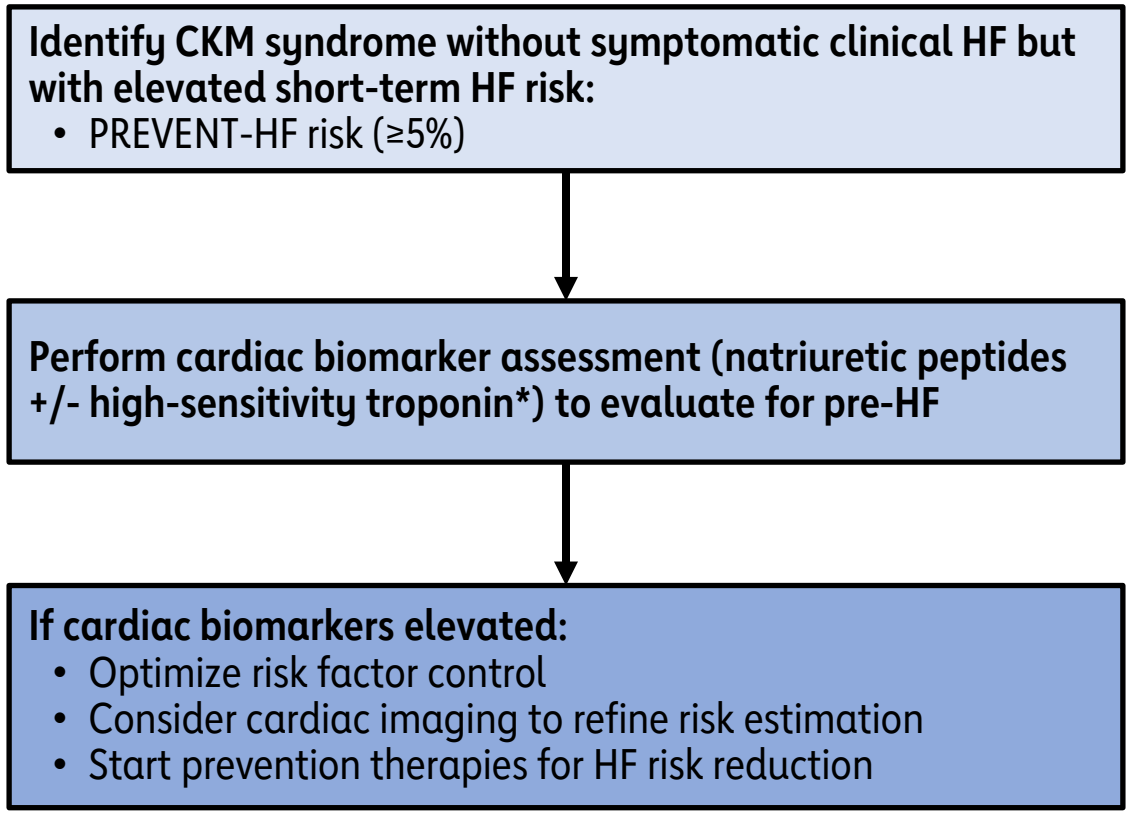
Evaluation and Management of Pre-HF in CKM Syndrome


Identify CKM syndrome without symptomatic clinical HF but with elevated short-term HF risk:
• PREVENT-HF risk (≥5%)
Perform cardiac biomarker assessment (natriuretic peptides +/- high-sensitivity troponin*) to evaluate for pre-HF
If cardiac biomarkers elevated:
• Optimize risk factor control
• Consider cardiac imaging to refine risk estimation
• Start prevention therapies for HF risk reduction

*High-sensitivity troponin can be considered for those with obesity, where natriuretic peptides may be low even in the setting of cardiac dysfunction and increased risk for developing HF. Evaluation of pre-HF in patients with CKM syndrome with increased predicted HF risk (PREVENT-HF risk ≥5%).

Abbreviations: CKM indicates cardiovascular kidney metabolic; and HF, heart failure.

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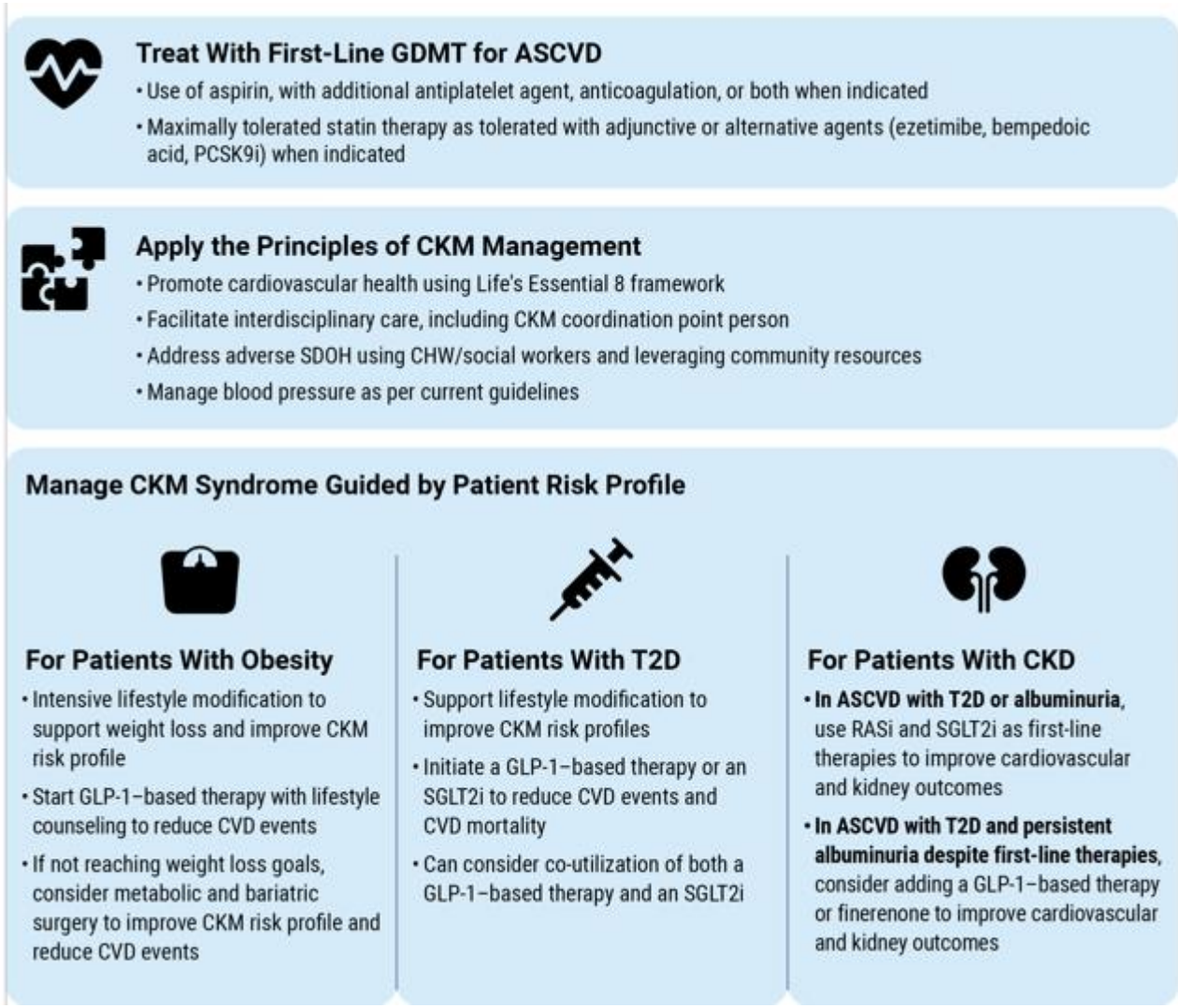
Overview of ASCVD Management in CKM Syndrome Stage 4


Treat With First-Line GDMT for ASCVD
• Use of aspirin, with additional antiplatelet agent, anticoagulation, or both when indicated
• Maximally tolerated statin therapy as tolerated with adjunctive or alternative agents (ezetimibe, bempedoic acid, PCSK9i) when indicated
Apply the Principles of CKM Management
• Promote cardiovascular health using Life's Essential 8 framework
• Facilitate interdisciplinary care, including CKM coordination point person
• Address adverse SDOH using CHW/social workers and leveraging community resources
• Manage blood pressure as per current guidelines
Manage CKM Syndrome Guided by Patient Risk Profile
For Patients With Obesity
• Intensive lifestyle modification to support weight loss and improve CKM risk profile
• Start GLP-1–based therapy with lifestyle counseling to reduce CVD events
• If not reaching weight loss goals, consider metabolic and bariatric surgery to improve CKM risk profile and reduce CVD events
For Patients With T2D
• Support lifestyle modification to improve CKM risk profiles
• Initiate a GLP-1–based therapy or an SGLT2i to reduce CVD events and CVD mortality
• Can consider co-utilization of both a GLP-1–based therapy and an SGLT2i
For Patients With CKD
• In ASCVD with T2D or albuminuria, use RASi and SGLT2i as first-line therapies to improve cardiovascular and kidney outcomes
• In ASCVD with T2D and persistent albuminuria despite first-line therapies, consider adding a GLP-1–based therapy or finerenone to improve cardiovascular and kidney outcomes

Abbreviations CHW indicates community health worker; CKM, cardiovascular kidney metabolic; CVD, cardiovascular disease; GDMT, guideline directed medical therapy; GLP-1, glucagon-like peptide-1; RASi; renin-angiotensin system inhibitors; SDOH, social determinants of health; SGLT2i ; sodium-glucose cotransporter-2 inhibitors; and T2D, type 2 diabetes.

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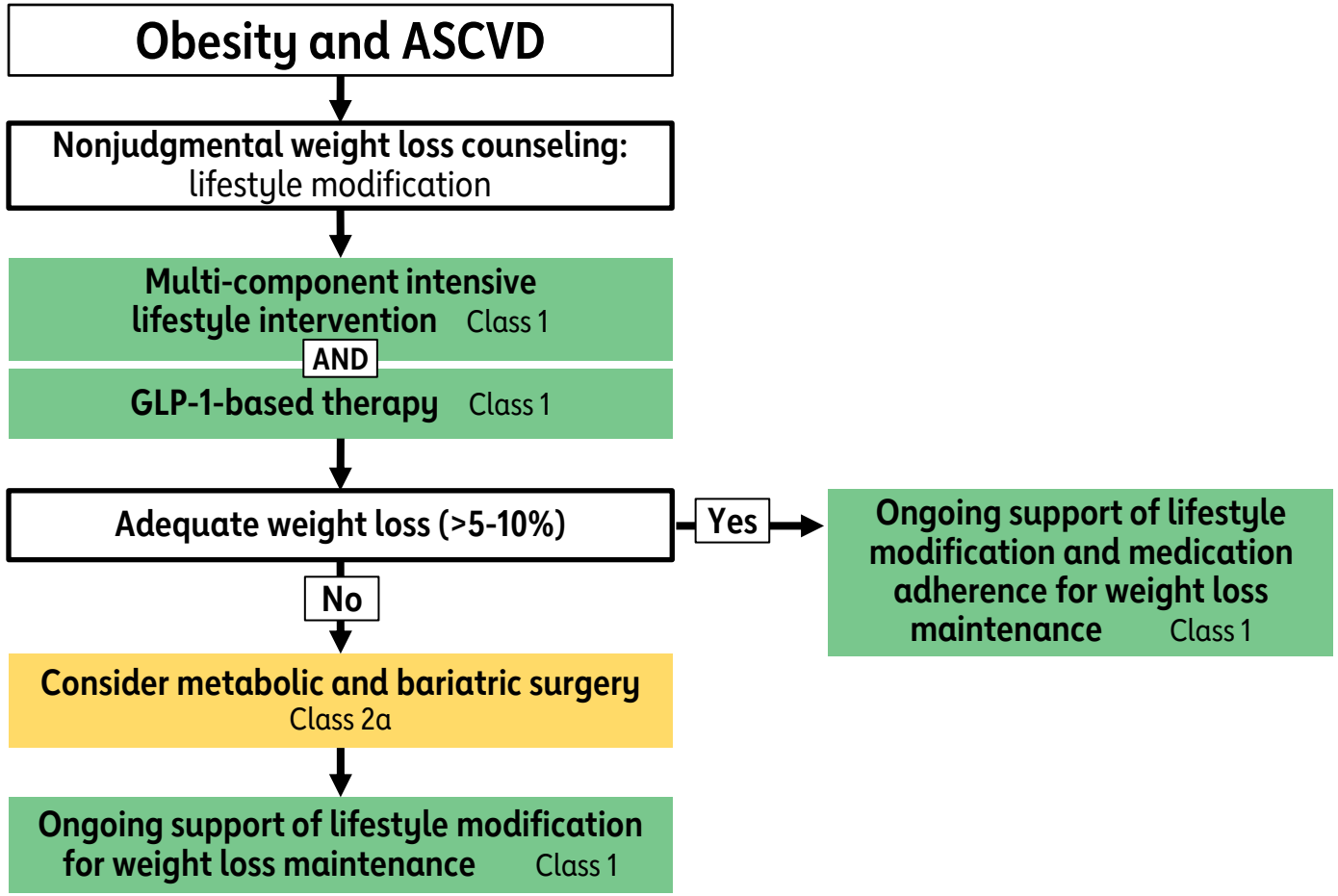
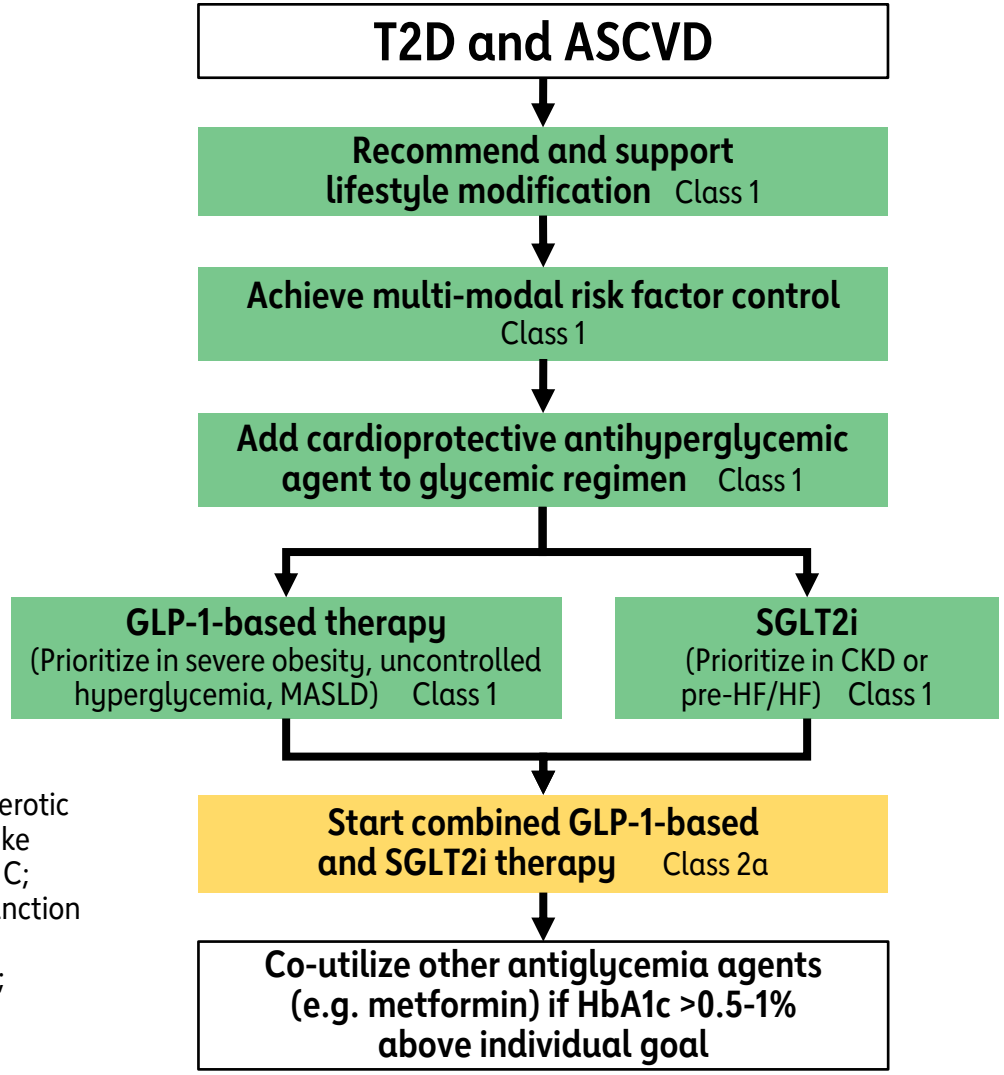
Management of Comorbid Obesity and ASCVD in CKM


Obesity and ASCVD
Nonjudgmental weight loss counseling: lifestyle modification
Multi-component intensive lifestyle intervention Class 1
AND
GLP-1-based therapy Class 1
Adequate weight loss (>5-10%)
Yes
Ongoing support of lifestyle modification and medication adherence for weight loss maintenance Class 1
No
Consider metabolic and bariatric surgery Class 2a
Ongoing support of lifestyle modification for weight loss maintenance Class 1

Abbreviations: ASCVD indicates atherosclerotic cardiovascular disease; and GLP-1, glucagon-like peptide 1.

Management of Comorbid T2D and ASCVD in CKM


T2D and ASCVD
Recommend and support lifestyle modification Class 1
Achieve multi-modal risk factor control Class 1
Add cardioprotective antihyperglycemic agent to glycemic regimen Class 1
GLP-1-based therapy (Prioritize in severe obesity, uncontrolled hyperglycemia, MASLD) Class 1
SGLT2i (Prioritize in CKD or pre-HF/HF) Class 1
Start combined GLP-1-based and SGLT2i therapy Class 2a
Co-utilize other antiglycemia agents (e.g. metformin) if HbA1c >0.5-1% above individual goal

Abbreviations: ASCVD indicates atherosclerotic cardiovascular disease; GLP-1, glucagon-like peptide-1; HbA1c, glycated hemoglobin A1C; HF, heart failure; MASLD, metabolic-dysfunction associated steatotic liver disease; SGLT2i ; sodium-glucose cotransporter-2 inhibitors; and T2D, type 2 diabetes.

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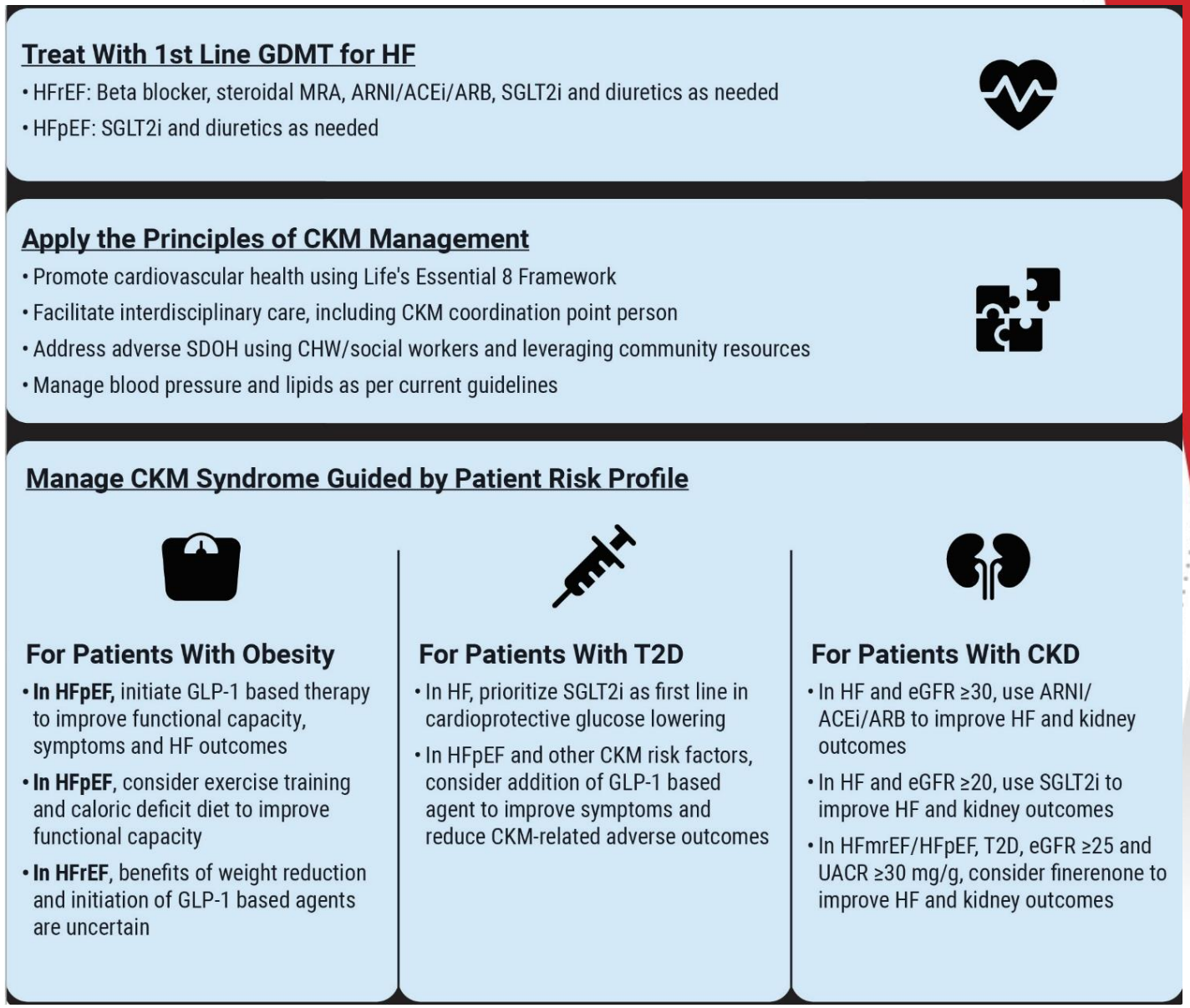
Overview of HF Management in CKM Syndrome Stage 4


Treat With 1st Line GDMT for HF
• HFrEF: Beta blocker, steroidal MRA, ARNI/ACEi/ARB, SGLT2i and diuretics as needed
• HFpEF: SGLT2i and diuretics as needed
Apply the Principles of CKM Management
• Promote cardiovascular health using Life's Essential 8 Framework
• Facilitate interdisciplinary care, including CKM coordination point person
• Address adverse SDOH using CHW/social workers and leveraging community resources
• Manage blood pressure and lipids as per current guidelines
Manage CKM Syndrome Guided by Patient Risk Profile
For Patients With Obesity
• In HFpEF, initiate GLP-1 based therapy to improve functional capacity, symptoms and HF outcomes
• In HFpEF, consider exercise training and caloric deficit diet to improve functional capacity
• In HFrEF, benefits of weight reduction and initiation of GLP-1 based agents are uncertain
For Patients With T2D
• In HF, prioritize SGLT2i as first line in cardioprotective glucose lowering
• In HFpEF and other CKM risk factors, consider addition of GLP-1 based agent to improve symptoms and reduce CKM-related adverse outcomes
For Patients With CKD
• In HF and eGFR ≥30, use ARNI/ACEi/ARB to improve HF and kidney outcomes
• In HF and eGFR ≥20, use SGLT2i to improve HF and kidney outcomes
• In HFmrEF/HFpEF, T2D, eGFR ≥25 and UACR ≥30 mg/g, consider finerenone to improve HF and kidney outcomes

Abbreviations: CHW indicates community health worker; CKM, cardiovascular kidney metabolic; CVD, cardiovascular disease; eGFR, estimated glomerular filtration rate; GDMT, guideline directed medical therapy; GLP-1, glucagon-like peptide-1; HF, heart failure; HFpEF, heart failure with preserved ejection fraction; HFrEF, heart failure with reduced ejection fraction; SDOH, social determinants of health; SGLT2i ; sodium-glucose cotransporter-2 inhibitors; and T2D, type 2 diabetes.

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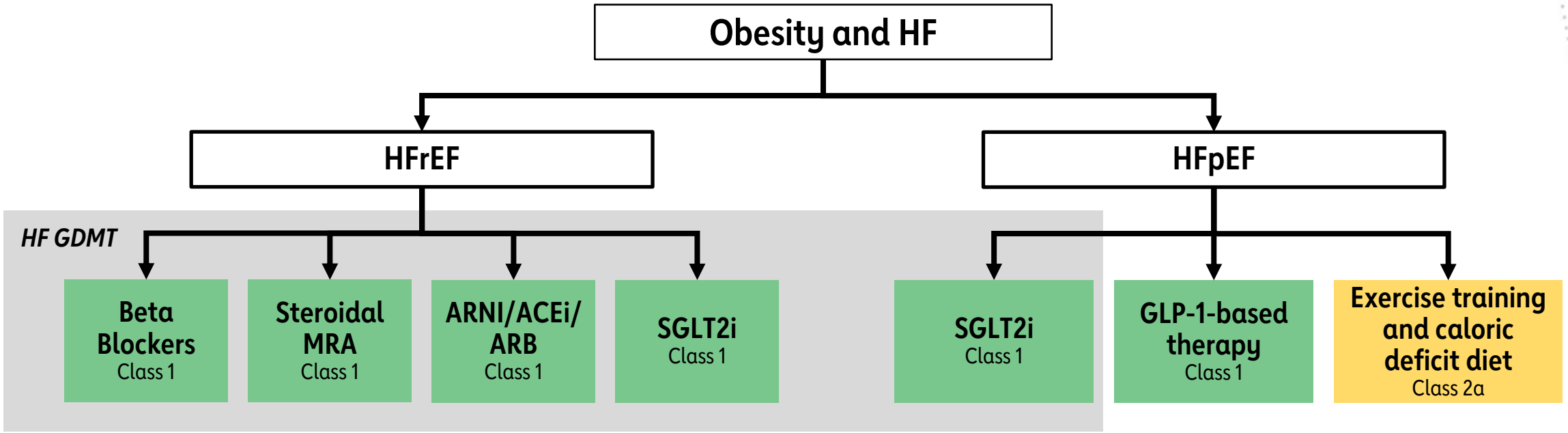
Management of Obesity and HF According to HF Subtype



With the exception of the SGLT2i COR for HFpEF which is anticipated to be updated in the next 2022 HF guideline iteration, GDMT is concordant with the 2022 HF guideline per HF subtype which is highlighted in gray.

Abbreviations: GDMT indicates guideline directed medical therapy; GLP-1, glucagon-like peptide-1; HF, heart failure; HFpEF, heart failure with preserved ejection fraction; HFrEF, heart failure with reduced ejection fraction; and SGLT2i, sodium-glucose cotransporter-2 inhibitors.

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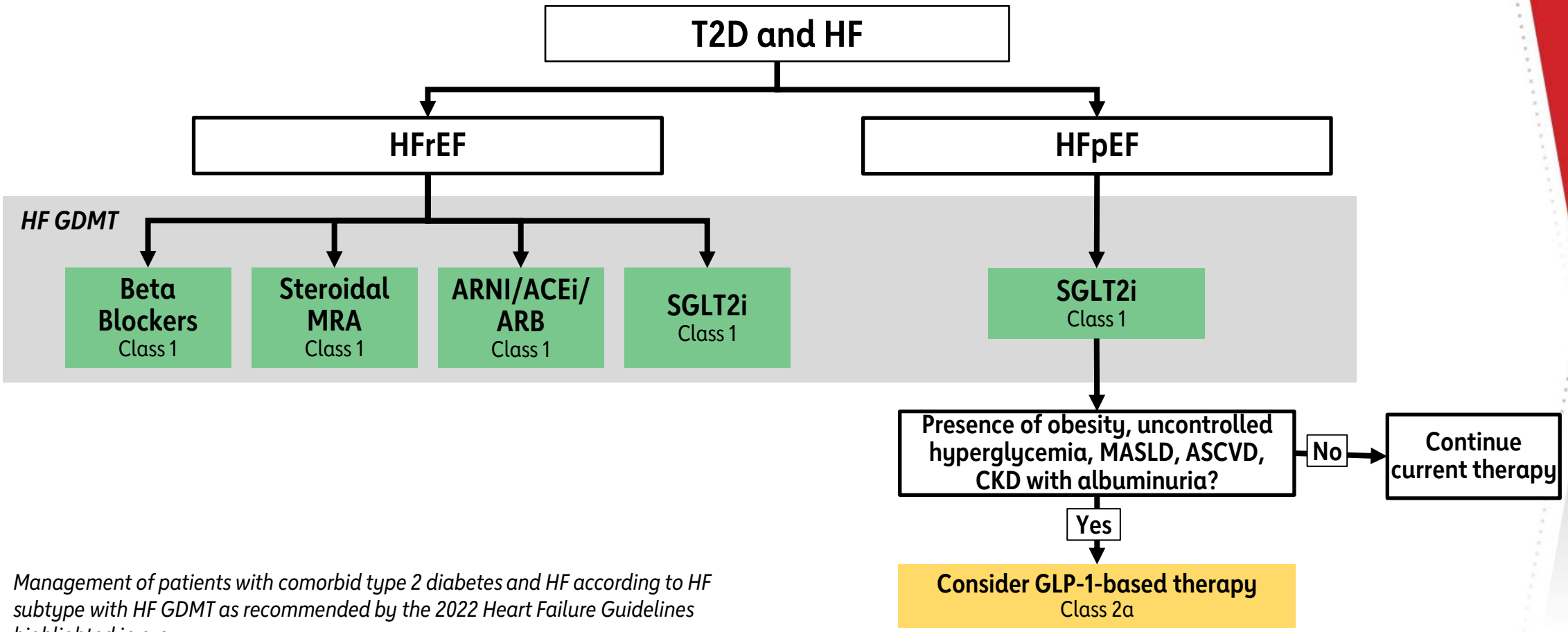
Ndumele, C.E., et al. 2026 AHA/ACC/ADA/ASN Guideline for the Prevention, Detection, Evaluation, and Management of CKM Syndrome. *Circulation*.

Management of Type 2 Diabetes and HF According to HF Subtype



Management of patients with comorbid type 2 diabetes and HF according to HF subtype with HF GDMT as recommended by the 2022 Heart Failure Guidelines highlighted in gray.

Abbreviations: GDMT indicates guideline directed medical therapy; GLP-1, glucagon-like peptide-1; HF, heart failure; HFpEF, heart failure with preserved ejection fraction; HFrEF, heart failure with reduced ejection fraction; and SGLT2i, sodium-glucose cotransporter-2 inhibitors.

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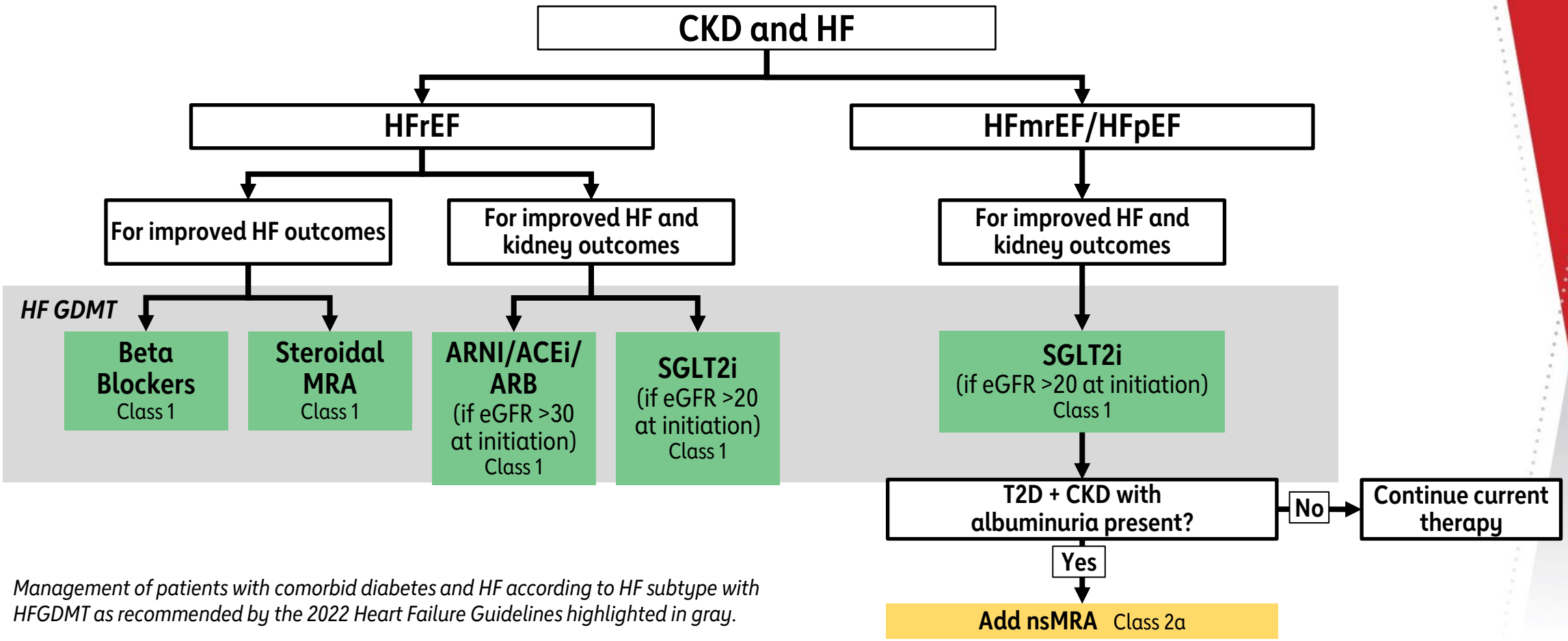
Management of CKD and HF According to HF Subtype



Management of patients with comorbid diabetes and HF according to HF subtype with HFGDMT as recommended by the 2022 Heart Failure Guidelines highlighted in gray.

Abbreviations: CKD indicates chronic kidney disease; GDMT, guideline directed medical therapy; eGFR, estimated glomerular filtration rate; HF, heart failure; HFpEF, heart failure with preserved ejection fraction; HFrEF, heart failure with reduced ejection fraction; HFmrEF, heart failure with mildly reduced ejection fraction; SGLT2i, sodium-glucose cotransporter-2 inhibitors; and T2D, type 2 diabetes.

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